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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,975	05/30/2002	Chih-Jung Ni	8642-US-PA	4063
31561	7590	06/09/2004	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			VINH, LAN	
			ART UNIT	PAPER NUMBER
			1765	

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/063,975

Applicant(s)

NI ET AL.

Examiner

Lan Vinh

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,8 and 9 is/are allowed.
- 6) ☒ Claim(s) 3-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/063,975.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 3 is rejected under 35 U.S.C. 102(b) as being anticipated by Fukazawa et al (US 5,810,940)

Fukazawa discloses a method for cleaning semiconductor wafer in a cleaning vessel/reactor using a controller to control a concentration of the mixed acid solution (col 5, lines 20-30), the concentration of the mixed solution being controlled by providing a time period list including time interval and added amount of HF (claimed spiking amount of a third acid) (col 5, lines 30-35, fig. 2B), fig. 2B also shows the added amounts of HF are constant, which reads on the spiking amounts are constant. The added amounts of HF/spiking amount of third acid is also seen being introduced into the vessel/reactor based on the time interval setting as seen in fig. 2B

3. Claims 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Verhaverbeke et al (US 6,132,522)

Verhaverbeke discloses a wet processing method using a processing system having a vessel to control a concentration of reactive process fluid containing acid (col 6, lines 40-46; col 10, lines 60-65), the concentration of the reactive process fluid being

Art Unit: 1765

controlled by providing a list of a plurality of run number of wafer and a plurality of spiking amount of HF/first acid liquid corresponding to run numbers of wafer (col 7, lines 55-60; col 10, lines 38-40, Table 3), which reads on providing a charge list including a plurality of lot numbers of product and a plurality of spiking amount of a first acid liquid corresponding to lot numbers of product

displacing the SC1 chemical mixture by HF in an order corresponding to the run number of wafer (col 14, lines 40-45, Table 3), which reads on introducing the spiking amounts of the first acid into the reactor in an order corresponding to the lot numbers of product

Regarding claim 5, Verhaverbeke discloses that HF can be used in a cleaning step after an etching step (col 9, lines 35-42), which reads on the acid liquid is not introduced into the reactor when a wafer is being etched

4. Claims 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukazawa et al (US 5,810,940)

Fukazawa discloses a method for cleaning semiconductor wafer in a cleaning vessel/reactor using a controller to control a concentration of the mixed acid solution (col 5, lines 20-30), the concentration of the mixed solution being controlled by providing a time period list including timing points (T12 and T13) during which HF is added/spike timing points and added amount of HF (claimed second acid) (col 5, lines 30-35, fig. 2B). The added amounts of HF/spiking amount of second acid is also seen being introduced into the vessel/reactor based on the timing points as seen in fig. 2B

Art Unit: 1765

Regarding claim 7, Fukazawa discloses using HF as a cleaning fluid (col 3, lines 47-49), which reads on the acid liquid is not introduced into the reactor when a wafer is being etched

***Allowable Subject Matter***

5. Claims 1-2, 8-9 allowed.

The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 8, the prior art of record fails to disclose or render obvious a method for spiking a mixed acid liquid in a reactor by using a computer to control a concentration of the mixed acid liquid, the concentration of the mixed acid liquid being controlled at a based-on-time-and-charge mode comprising introducing the spiking amounts of the first acid into the reactor based on the lot number of products and the spike timing point, in combination with the rest of the limitations of claims 1 and 8.

**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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June 3, 2004